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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

SEFER, AHMED N

ART UNIT PAPER NUMBER

2826

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| | | |
|--------------------------------------|----------------------------------------|--|
| Application No. 09/987,977 | Applicant(s) ARAKAWA, KOUHEI | |
| Examiner A. Sefer | Art Unit 2826 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____ .
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____ .
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11/01 .
- 4) Interview Summary (PTO-413) Paper No(s). _____ .
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 11 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "high temperature and high humidity" in claims 1, 11 and 15 is a relative term which renders the claim indefinite. The term " high temperature and high humidity " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigeno (JP 11-52362).

Shigeno discloses in fig. 4 a liquid crystal display device equipped with a pair of substrates 1/4 and a liquid crystal layer 3 sandwiched by the pair of substrates, wherein at least one 9 of the pair of substrates has a quarter wave plate characteristic.

Art Unit: 2826

As to claim 13, Shigeno discloses a light-reflecting member 8 disposed at an outer side of the substrate having the quarter wave plate characteristic, and a polarizing plate 4, which is disposed at an outer side of another 1 of the pair of substrates.

5. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Togashi USPN 4266859.

Togashi discloses (see fig. 10 and col. 7, lines 47-67) a liquid crystal display device equipped with a pair of substrates 10/12 and a liquid crystal layer 22 sandwiched by the pair of substrates, wherein at least one of the pair of substrates has a quarter wave plate characteristic.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 5, 6, 8 and 10 as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida USPN 5,818,559 in view of Akao et al (JP 2000-199939).

Yoshida discloses (see fig. 1 and col. 7, lines 50-65) a retardation film comprising: a material whose intrinsic birefringence value is positive; another material whose intrinsic birefringence value is negative; and a gas barrier layer on at least one of surfaces of the film, but does not disclose an oxygen gas permeability of the gas barrier layer in an atmosphere of high temperature and high humidity is not more than 10 ml/m.sup.2.multidot.day.multidot.MPa.

Art Unit: 2826

Akao et al disclose (see also equivalent USPN 6,376,057 col. 30, lines 15-24) an oxygen gas permeability of the gas barrier layer, which falls within the range recited in the claim.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Akao et al since that would prevent degradation of the device.

As for claims 5 and 6, Yoshida discloses (see col. 1, lines 36-40, col. 4, lines 35-40 and col. 7, lines 50-65) a material whose birefringence value is positive comprising norbornene type; and a material whose birefringence value is negative comprising polystyrene type (as in claim 6).

As for claim 8, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

As to claim 10, Akao et al disclose (see also equivalent USPN 6,376,057 col. 30, lines 1-14) an inorganic material comprising a thin membrane having a thickness, which falls within the range recited in the claim.

8. Claims 2, 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Akao et al as applied to claim 1 above, and further in view of Arakawa (JP 3-206422)/USPN 5,138,474.

The combined references fail to disclose a first and second layers having birefringence such that retarded phase axes of the first and second layers cross each other at a right angle.

Art Unit: 2826

Arakawa discloses (see figs. 1 and 2 and abstract of Akron '422) a retardation film comprising a first layer 7 formed with the material whose intrinsic birefringence value is positive and a second layer 8 formed with the material whose intrinsic birefringence value is negative, the first and the second layers having birefringence, and the first and second layers being layered such that retarded phase axes of the first and second layers cross each other at a right angle or direction of orientation of molecular chains of first and second layer are the same (as in claim 3).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Arakawa since that improve the visual angle characteristic of the device.

As for claims 6 and 7, Arakawa discloses (see col. 4, lines 52-67, col. 6, lines 55-67 and col. 7, lines 1-15 of Akron '474) and a material whose birefringence value is negative comprising styrene type; wherein the polymer of a styrene type comprises a copolymer of at least one of a styrene and a styrene derivative with at least one selected from the group consisting of acrylonitrile, maleic anhydride, methyl methacrylate and butadiene (as in claim 7).

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Akao et al and in further view of Arakawa as applied to claims 1 and 2 above, and in further in view of Weber USPN 6,590,707.

The combined references fail to disclose a layer, which includes a material whose intrinsic birefringence value is one of positive and negative.

Weber discloses (see figs. 9 and 10 and col. 8, lines 37-67) the advantage of employing a material including an intrinsic birefringence value, which is one of positive and negative.

Art Unit: 2826

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Weber since that would achieve a desired optical performance as taught by Weber.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Akao et al as applied to claim 1 above, and further in view of Arakawa et al. (JP 2000-147260).

The combined references fail to a retardation at wavelength λ , satisfying a relationship at each of wavelengths $\lambda = 450\text{nm}$, $\lambda = 550\text{nm}$, $\lambda = 650\text{nm}$:

$$0.2 \subseteq \text{Re}(\lambda)/\lambda \subseteq 0.3.$$

Arakawa et al disclose (see abstract) a phase difference for reflection type LCD device having a retardation at wavelength λ , satisfying a relationship at each of wavelengths $\lambda = 450\text{nm}$, $\lambda = 550\text{nm}$, $\lambda = 650\text{nm}$:

$$0.2 \subseteq \text{Re}(\lambda)/\lambda \subseteq 0.3.$$

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Arakawa et al since that would provide a cheaper phase difference board.

11. Claim 11, as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida USPN 5,818,559 in view of Akao et al (JP 2000-199939).

Yoshida discloses (see fig. 1 and col. 7, lines 50-65) a substrate for a liquid crystal display device having retardation film 5 and a transparent electroconductive thin membrane 9 formed on the surface of the retardation film, wherein the retardation film comprises a material whose intrinsic birefringence value is positive; another material whose intrinsic birefringence value is negative; and a gas barrier layer on at least one of surfaces of the film, but does not

Art Unit: 2826

disclose an oxygen gas permeability of the gas barrier layer in an atmosphere of high temperature and high humidity is not more than 10 ml/m.sup.2.multidot.day.multidot.MPa.

Akao et al disclose (see also equivalent USPN 6,376,057 col. 30, lines 15-24) an oxygen gas permeability of the gas barrier layer, which falls within the range recited in the claim.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Akao et al since that would prevent degradation of the device.

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Togashi USPN 4266859 in view of Arakawa et al. (JP 2000-147260).

Togashi fails to a retardation at wavelength λ , satisfying a relationship at each of wavelengths $\lambda = 450\text{nm}$, $\lambda = 550\text{nm}$, $\lambda = 650\text{nm}$:

$$0.2 \leq \text{Re}(\lambda) / \lambda \leq 0.3.$$

Arakawa et al disclose (see abstract) a phase difference for reflection type LCD device having a retardation at wavelength λ , satisfying a relationship at each of wavelengths $\lambda = 450\text{nm}$, $\lambda = 550\text{nm}$, $\lambda = 650\text{nm}$:

$$0.2 \leq \text{Re}(\lambda) / \lambda \leq 0.3.$$

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Arakawa et al since that would provide a cheaper phase difference board.

13. Claim 15, as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Togashi USPN 4266859 in view of Akao et al (JP 2000-199939).

Art Unit: 2826

Togashi discloses the device structure as recited in the claim, but does not specifically disclose a quarter wave plate comprising a gas barrier having an oxygen permeability.

Akao et al disclose (see also equivalent USPN 6,376,057 col. 30, lines 15-24) an oxygen gas permeability of the gas barrier layer, which falls within the range recited in the claim.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Akao et al since that would prevent degradation of the device.

14. Claim 16 and 18-20, as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Togashi USPN 4266859 in view of Arakawa (JP 3-206422)/USPN 5,138,474.

Togashi fails to disclose a first and second layers having birefringence such that retarded phase axes of the first and second layers cross each other at a right angle.

Arakawa discloses (see figs. 1 and 2 and abstract of Akron '422) a retardation film comprising a first layer 7 formed with the material whose intrinsic birefringence value is positive and a second layer 8 formed with the material whose intrinsic birefringence value is negative, the first and the second layers having birefringence, and the first and second layers being layered such that retarded phase axes of the first and second layers cross each other at a right angle.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Arakawa since that improve the visual angle characteristic of the device.

As for claims 19 and 20, Arakawa discloses (see col. 4, lines 52-67, col. 6, lines 55-67 and col. 7, lines 1-15 of Akron '474) and a material whose birefringence value is negative

Art Unit: 2826

comprising styrene type; wherein the polymer of a styrene type comprises a copolymer of at least one of a styrene and a styrene derivative with at least one selected from the group consisting of acrylonitrile, maleic anhydride, methyl methacrylate and butadiene (as in claim 20).

15. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Togashi USPN 4266859 in view of Arakawa (JP 3-206422)/USPN 5,138,474 as applied to claims 12 and 16 above, and further in view of Yoshida USPN 5,818,559.

The combined references fail to disclose a material whose intrinsic birefringence value is positive comprises a polymer of a norbornene type.

Yoshida discloses (see fig. 1 and col. 7, lines 50-65) a substrate for a liquid crystal display device having retardation film 5 and a transparent electroconductive thin membrane 9 formed on the surface of the retardation film, wherein the retardation film comprises a material whose intrinsic birefringence value is positive comprises a polymer of a norbornene type.

Therefore, it would have been obvious to employ norbornene type art-recognized element since that would prevent degradation of the display device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (703) 605-1227.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601.

ANS
August 16, 2003

NATHAN J. FLYNN
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